

REMARKS

Claims 1-20 are pending, including independent claims 1, 9, 14 and 15. All claims have been rejected as anticipated by or obvious over U.S. Patent 5,862,509 ("Desai").

Claim 1, for example, recites a navigation system in which, *inter alia*, the stored map data includes road information about a "partial lane" in a plurality of lanes constituting a road, where changing between the partial lane and another lane is permitted only at an authorized section. Such a partial lane can be, *e.g.*, a carpool lane of an expressway. Thus, Applicant's invention in claim 1 essentially treats a partial lane as a separate link in the road network for the purpose of performing a navigation operation. Each of the other independent claims 9, 14 and 15 includes a similar feature.

Applicant submits that the Examiner's reliance on Desai is incorrect. Desai describes a system and method for determining a vehicle guidance route by taking into account travel restrictions that are dependent on time, *e.g.*, no turns during rush hour, or the presence of carpool lanes during rush hour (see, *e.g.*, Abstract; col. 1, lines 35-47; col. 2, lines 23-37). However, Desai does not treat carpool lanes and the like as separate links in the stored road network and therefore does not provide a guidance route that specifically includes such lanes as part of the route (see, *e.g.*, col. 3, lines 44-56; col. 7, line 61 to col. 8, line 2; col. 8, lines 60-62).

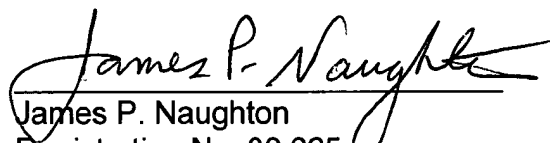
Therefore, Desai is not applicable to Applicant's invention, which treats a partial lane as a separate link and the entrances/exits of the partial lane as nodes in the road network. In order to clarify this feature of Applicant's claimed invention, independent claims 1, 9, 14 and 15 have been amended to recite that the partial lane or carpool lane (claim 14) is separately described in the stored map data by link and node data.

Moreover, to facilitate the prosecution of this application, Applicant also has amended independent claims 1, 9 and 15 to recite a further feature, described in the application at pg. 22, lines 1-15. *E.g.*, when traveling in a partial lane such as a carpool

lane, guidance for the exit from the partial lane to an adjacent normal lane can be performed at a timing that depends in part on the location of the ultimate road exit and the width (number of lanes) of the road. Thus, if an expressway has many lanes, more time may be needed to leave the partial lane and traverse a plurality of normal lanes in time to take the desired exit from the expressway. This feature clearly is not described or suggested in the cited references.

Accordingly, Applicant submits that the claims as presently amended are patentable over the cited references. Applicant respectfully requests reconsideration and allowance of this application.

Respectfully submitted,


James P. Naughton
Registration No. 30,665
Attorney for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200

ATTACHMENT A

Marked-Up Version of Claims 1, 9, 14 and 15

1. (Amended) A navigation system comprising:

a map data storage section for storing map data including road information regarding a partial lane in a plurality of lanes constituting a road, where advancing or leaving between a partial lane relative to another lane is permitted only in a predetermined authorized section, said road information regarding a partial lane comprising node and link data wherein a predetermined authorized section for advancing or leaving is stored as a node and a section of the partial lane extending between two authorized sections is stored as a link;

a vehicle position detecting section for detecting the position of a vehicle; and

a navigation processing section for performing a predetermined navigation operation, based on said position of the vehicle detected by said vehicle position detecting section and the map data stored in said map data storage section;

wherein lane change guidance between a partial lane and another lane is performed at a timing that takes into consideration the location of a desired road exit and one of the width of the road and the number of lanes in the road.

9. (Amended) A navigation system comprising:

a map data storage section for storing map data including road information regarding a partial lane in a plurality of lanes constituting a road, where advancing or leaving between a partial lane relative to another lane is permitted only in a predetermined authorized section, said road information regarding a partial lane comprising node and link data wherein a predetermined authorized section for advancing or leaving is stored as a node and a section of the partial lane extending between two authorized sections is stored as a link;

a vehicle position detecting section for detecting the position of a vehicle;

a route search processing section for searching a driving route and setting the guidance route, taking the use of said partial lane into consideration;

a timing judging section for judging a timing for performing predetermined guidance notification regarding said authorized section, based on the position of said authorized section on said guidance route and said position of the vehicle; and

a guidance notification section for performing said guidance notification at a timing judged by said timing judging section;

wherein lane change guidance between a partial lane and another lane is performed at a timing that takes into consideration the location of a desired road exit and one of the width of the road and the number of lanes in the road.

14. (Amended) A navigation system comprising:

a map data storage section for storing map data including road information regarding a carpool lane, said road information separately describing the carpool lane as link and node data;

a vehicle position detecting section for detecting the position of a vehicle;

a route search processing section for searching a driving route and setting the guidance route, taking the use of said carpool lane into consideration;

a timing judging section for judging a timing for performing guidance notification of a route change regarding advancing/leaving points, based on the advancing/leaving points where advancing or leaving between a carpool lane and ordinary lanes on said guidance route is permitted and said position of the vehicle, at the time of route guidance, and

for performing guidance notification that the vehicle is approaching said advancing/leaving point, based on the advancing/leaving points and said position of the vehicle, when the route guidance is not being performed, and

a guidance notification section for performing guidance notification of a route guidance regarding said advancing/leaving points at the time of route guidance, and performing guidance notification that the vehicle is approaching said advancing/leaving point, when the route guidance is not being performed.

15. (Amended) A route guidance method in a navigation system comprising:

storing map data including road information regarding a partial lane in a plurality of lanes constituting a road, where advancing or leaving between a partial lane relative to another lane is permitted only in a predetermined authorized section, said road information regarding a partial lane comprising node and link data wherein a predetermined authorized section for advancing or leaving is stored as a node and a section of the partial lane extending between two authorized sections is stored as a link;

detecting the position of a vehicle;

searching a driving route and setting the guidance route, taking the use of said partial lane into consideration;

judging a timing for performing predetermined guidance notification regarding said authorized section, based on said authorized section on said guidance route and said position of the vehicle; and

performing said guidance notification at a timing judged by said timing judging section;

wherein lane change guidance between a partial lane and another lane is performed at a timing that takes into consideration the location of a desired road exit and one of the width of the road and the number of lanes in the road.